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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,224	06/28/2005	Laurence E. Allen III	10887-010US2	2121

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EXAMINER	
HAGEMAN, MARK	

ART UNIT	PAPER NUMBER
3653	

NOTIFICATION DATE	DELIVERY MODE
07/06/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/511,224	ALLEN III ET AL.	
	Examiner	Art Unit	
	Mark Hageman	3653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-23,25-27,30-42,45-55,57-60 and 63-68* is/are pending in the application.

4a) Of the above claim(s) *16,18-23,25-27,30-42,54,55,58 and 63-68* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *53,57,59,60 and 1545* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10-12-2004, 12-08-05, 2-13-06, 10-3-08, 1-12-09, 2-26-09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group 10 in the reply filed on 2-26-2009 is acknowledged. The traversal is on the ground(s) that the claims contain a common special technical feature of "a sequence of processes that include . . . the narrow surface to mass distribution (d)." This is not found persuasive because as addressed in the restriction requirement and elected originally without traverse in the response dated 8-4-2008 group 10 corresponds to claims with a special technical feature of a process including triboelectrostatic separataion. Of the amended currently pending claims only claims 45-53, 57, 59 and 60 actually require triboelectrostatic separation and are thus properly part of the elected group 10. Examiner contends that when triboelectrostatic separation is not part of the claimed process (as in the other dependant claims) these claims lack unity of invention with the claims of group 10.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 16, 17, 18-23, 25-27, 30-42, 54, 55, 58, 63-68 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 2-26-2009.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

4. Claims 45 and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 45 and 46 use language such as "subjecting the plastic-rich mixture to a sequence of processes includes" and "the sequence of processes includes" respectively. These render the claim indefinite as it is not clear whether the limitations discussed are actually limiting/describing one of the steps a-f (most likely step d) from claim 15 or whether the limitations are in addition to the steps already listed. If they are in addition to the order of steps becomes unclear as claim 15 sets forth a specific order of steps to take place.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 15, 45-51, 53, 57, 59, and 60 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,452,126 to Xiao

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it

constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Xiao discloses a plastic recycling process, comprising: receiving a plastic-rich mixture that includes at least two types of plastics (c3 lines 27+); determining the plastic-rich mixture to have at least one property, wherein the property is the amount of metal in the mixture, a range of densities, a difference in thicknesses, friction, adhesion or elasticity, different relative charging characteristics, different conductivity, an amount of trapped moisture or gases, a range of colors, a particle size or a difference in viscosity (c1 lines 20+ and figure 5); selecting, based on the at least one property, at least six processes for processing the plastic-rich mixture, wherein the selection is based on a type of a feed source for the plastic- rich mixture, a geographical origin of the feed source, or a temporal distribution of the types of plastics in the mixture (c3 lines 30+ and figure 1), wherein the at least six processes comprise the following sequence of processes in an order of: a) a preprocessing step (12, 16); b) a size reduction step (18); c) a surface to mass control process (20, 22, 24-30), which involves sorting by thickness, sorting with an air table, sorting with an air-classifier (22), screening (20), or tabling and which achieves a narrow distribution of surface to mass ratios; d) a separation process which separates a first plastic type from a second plastic type and is enhanced by the narrow surface to mass distribution, the process involving either

electrostatic sorting (32-36 and 38-42), froth flotation, or density differential alteration; e) a blending step (c3 lines 51+ and figure 1); and f) an extrusion step (c3 lines 52+ and figure 1); subjecting the plastic-rich mixture to the sequence of processes; and collecting a recycled plastic material as an output of the sequence of processes (c3 lines 53+ and figure 1).

Re claim 45 subjecting the plastic-rich mixture to a sequence of processes includes subjecting the plastic-rich mixture to a gravity concentration (24-30) operation to create one or more streams of plastic material, followed by a triboelectrostatic (32-42) separation of one of the one or more streams of plastic material.

Re claim 46 the surface to mass control process recovers a plurality of products and the sequence of processes includes subjecting at least one of the plurality of products to triboelectrostatic separation (32-42 and figures 7 and 8).

Re claim 47 the separation process enhanced by narrow surface to mass distribution is a triboelectrostatic separation (32-42 and figures 7 and 8).

Re claim 48 subjecting the plastic-rich mixture to a triboelectrostatic separation includes subjecting the plastic-rich mixture to a triboelectrostatic separation in which a charge mediating material is added (c6 lines 8+ and figures 7 and 8).

Re claim 49 subjecting the plastic-rich mixture to a triboelectrostatic separation includes tuning a triboelectrostatic separator, including selecting a geometry of the triboelectrostatic separator, selecting a charge of charge plates of the triboelectrostatic separator, selecting an angle of the charge plates, or selecting a voltage applied to the charge plates (c5 lines 60+ and 6 lines 49+).

Re claim 50 subjecting the plastic-rich mixture to a triboelectrostatic separation includes subjecting the plastic-rich mixture to two or more triboelectrostatic separators in series (32, 38 etc. c3 lines 46+).

Re claim 51 subjecting the plastic-rich mixture to a triboelectrostatic separation includes feeding one or more product streams from a first stage triboelectrostatic separator back into the first stage triboelectrostatic separator (figure 8).

Re claim 53 subjecting the plastic-rich mixture to a triboelectrostatic separation includes subjecting one or more product streams from a triboelectrostatic separator to a surface to mass control operation, followed by subsequent a triboelectrostatic separation (figure 1 see above relative to claim 15 also).

Re claim 57 the separation process that is enhanced by the narrow surface to mass distribution is a triboelectrostatic separation (figures 7 and 8); and collecting a recycled plastic material includes collecting a first output and a second output, (8 figure

1) wherein the first output includes ABS and the second output includes SAN, the first output has a lower percentage of SAN than the second output and the second output has a lower percentage of ABS than the first output (figure1).

Re claim 59\ the separation process that is enhanced by the narrow surface to mass distribution is a triboelectrostatic separation to separate PC and ABS from flame retarded ABS and to separate a PC/ABS blend from flame retarded ABS (figure 1 outputs).

Re claim 60 the separation process that is enhanced by the narrow surface to mass distribution is a triboelectrostatic separation to separate flame retarded HIPS from non-flame retarded HIPS (figure 1 outputs).

Claim Rejections - 35 USC § 103

7. Claim 52 is rejected under 35 U.S.C. 103(a) as being obvious over Xiao in view of US 5,314,071 to Christian.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed

subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Xiao discloses all the limitations of the claim except subjecting the plastic-rich mixture to a triboelectrostatic separation includes feeding one or more product streams from a second stage triboelectrostatic separator to a first stage triboelectrostatic separator. Christian discloses staged sorter arrangements that include feeding outputs from a second stage sorter to a first stage sorter (figure 11 and c7 lines 37+) in order to provide more thorough sorting and twice purified outputs (c7 lines 42+).

It would have been obvious to one of ordinary skill in the art at the time of the applicants' invention to have modified Xiao to include the staged arrangement, as taught by Christian, in order to provide more thorough sorting and twice purified outputs.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Hageman whose telephone number is (571) 272-3027. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Mackey can be reached on (571) 272-6916. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick H. Mackey/
Supervisory Patent Examiner, Art Unit 3653

MCH